Supplementary information

	Storage for 2 days			Storage for 3 days		Storage for 7 days	Storage for 14 days
Cr (ng)	No phthalic anhydride	Room temperature	4°C	Room temperature	4°C	4°C	4°C
0							
230							
470							
940							
1880							
3750							

S.D. 1. Effect of storage on μPAD performance. Devices were evaluated after 2, 3, 7, and 14-days. Background signals were obtained by adding acetate buffer pH 4.5 0.1 M.

t-Test: Paired Two Sample for Means of Cr 0.47 µg detection using proposed method		
	Variable 1	*Variable 2*
Mean	0.5	0.5
Variance	0.0	0.0
Observations	7.0	7.0
Pearson Correlation	0.9	
Hypothesized Mean Difference	0.0	
df	6.0	
t Stat	1.4	
P(T<=t) one-tail	0.1	
t Critical one-tail	1.9	
P(T<=t) two-tail	0.2	
t Critical two-tail	2.4	

392

t-Test: Paired Two Sample for Means of Cr 1.88 µg detection using proposed method		
	Variable 1	*Variable 2*
Mean	1.9	1.8
Variance	0.1	0.0
Observations	7.0	7.0
Pearson Correlation	0.3	
Hypothesized Mean Difference	0.0	
df	6.0	
t Stat	0.7	
P(T<=t) one-tail	0.3	
t Critical one-tail	1.9	
P(T<=t) two-tail	0.5	
t Critical two-tail	2.4	

393

394 **Table S.D.1** t-Test: Paired Two Sample for Means of Cr detection in the presence and

395 absence of interfering compound using the µPAD method

396

Certified metals	
Metal	**Value (mg/kg)**
Cadmium, Cd	510±6.22
Chromium, Cr (total)	2230±29.0
Lead, Pb	1910±19.5
Uncertified metals	
Metal	**Value (mg/kg)**
Aluminium, Al	6090
Antimony, Sb	16
Arsenic, As	2

Barium, Ba	1930
Boron, B	51
Beryllium, Be	□0.1
Calcium, Ca	3880
Cobalt, Co	9
Copper, Cu	109
Iron, Fe	5860
Magnesium, Mg	1070
Manganese, Mn	107
Mercury, Hg	2
Molybdenum, Mo	29
Nickel, Ni	14
Potassium, K	336
Silver, Ag	7
Selenium, Se	1
Sodium, Na	783
Strontium, Sr	1900
Thallium, Tl	9
Tin, Sn	136
Titanium, Ti	133
Vanadium, V	2
Zinc, Zn	3150

397

398 **Table S.D.2** Certified and uncertified metal levels in baghouse dust

399